Office of the State Actuary

"Supporting financial security for generations."

Actuarial Certification Letter
Actuarial Valuation Report
As of June 30, 2023

August 2024

This report documents the results of an actuarial valuation of the retirement plans defined under Chapters 41.26, 41.32, 41.35, 41.37, 41.40, and 43.43 of the Revised Code of Washington (RCW). The primary purpose of this funding valuation is to determine contribution requirements for the retirement plans for the 2025-27 Biennium based on a June 30, 2023, measurement date, consistent with the prescribed funding policies. This valuation also provides information on the funding progress and developments in the plans over the past year. This valuation report should not be used for other purposes. Please replace this report with a more recent report when available.

Future actuarial measurements may differ significantly from the current measurements presented in this report if plan experience differs from that anticipated by the assumptions, or if changes occur in the methods, assumptions, plan provisions, or applicable law. The Risk Assessment webpage provides further information on the range and likelihood of potential outcomes that vary from expected results. The Commentary on Risk webpage provides additional risk education.

The valuation results summarized in this report involve calculations that require assumptions about future economic and demographic events. We believe that the assumptions and methods used in the underlying valuation are reasonable and appropriate for the primary purpose stated above. However, the use of another set of assumptions and methods could also be reasonable and could produce materially different results. Actual results may vary from our expectations.

For all plans except for the Law Enforcement Officers' and Fire Fighters' Retirement System (LEOFF) Plan 2, the assumptions used in this valuation for investment return, inflation, salary growth, and membership growth were prescribed by the Pension Funding Council (PFC) and are subject to revision by the Legislature. For LEOFF Plan 2, these assumptions are prescribed by the LEOFF Plan 2 Retirement Board. Please see our ***2023 Economic Experience Study*** (EES) for further information on economic assumptions. We developed the demographic assumptions used in this valuation during the ***2013-2018 Demographic Experience Study***.

In our opinion, the combined effect of all the assumptions used in this funding valuation to calculate actuarially determined contribution rates is expected to have no significant bias.

According to ASOP 4 – *Measuring Pension Obligations And Determining Pension Plan Costs Or Contributions*, a "contribution allocation procedure" is defined as a procedure that determines the actuarially determined contributions for a plan. The procedure uses an actuarial cost method and may use an asset valuation method, an amortization method, or an output smoothing method.

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The Legislature prescribed the contribution allocation procedures for all the plans in this report including prescribed amortization and asset valuation methods. In our opinion, all the methods under the contribution allocation procedures are reasonable and produce reasonable actuarially determined contributions. The contribution allocation procedures are consistent with all plans accumulating sufficient assets to pay benefit payments when due assuming all assumptions are realized and actuarially determined contributions are made when due.

The Legislature prescribed the use of the aggregate actuarial cost method to determine contribution requirements for the opens plans in this report. This is a standard actuarial cost method applied in a standard manner. The cost method does not produce an Unfunded Actuarial Accrued Liability (UAAL) as no unfunded benefits are funded outside the plan's normal cost contributions. Based on the results of our most recent **Projections Model** (2022 Valuation Projections Model), if all assumptions are realized and all actuarially determined contributions are made when due, we expected all opens plans to reach a funded status, calculated under the Entry Age Normal actuarial cost method, of at least 100% within approximately the next five years. After reviewing the results of this actuarial valuation and considering the expected impact of material changes since our last projections model, including the impact of the PFC (and LEOFF 2 Board) adopting contribution rates below actuarially determined levels for the 2025-27 Biennium, we, based on our professional judgment, continue to expect the plans to reach a funded status of at least 100% within a similar time frame as our prior projections.

The actuarial cost method prescribed by the Legislature for the Public Employees' Retirement System (PERS) Plan 1 and the Teachers' Retirement System (TRS) Plan 1 includes a non-standard amortization method since it includes payroll outside the plan. Additionally, the contribution allocation procedure includes prescribed contribution rates, excluding those used to fund past benefit improvements, through the 2025-27 Biennium and minimum contribution rates effective at the beginning of the 2027-29 Biennium. All contributions required under this allocation procedure are necessary to fully amortize the UAAL in these plans. Failure to make all future required contributions may result in premature plan insolvency.

The actuarial cost method for PERS 1 and TRS 1 is also non-standard in its use of the employer normal cost rate from the Plans 2/3 instead of the underlying Plan 1 employer normal cost rate. However, we find this method reasonable and appropriate given the limited remaining future salary in Plan 1 and the relatively short period for amortizing the UAAL. Furthermore, Plan 1 member normal cost rates are fixed in statute at 6% and the use of the Plan 2/3 employer normal cost for Plan 1 allows the Legislature to charge all employers the same contribution rate regardless of the plan in which employees hold membership (except for LEOFF).

As noted above, no amortization methods are necessary to calculate actuarially determined contributions for the opens plans. For LEOFF 1, no contributions (or amortization method) are required when the plan's assets exceed the present value of fully projected benefits. For PERS 1 and TRS 1, the Legislature prescribed two amortization methods to determine total Plan 1 UAAL rates. Benefit improvements enacted after 2009 are amortized over a fixed ten-year period. Any remaining UAAL, the "base UAAL," is funded through a rolling ten-year amortization period with minimum contribution rates effective at the beginning of the 2027-29 Biennium. Due to the rolling amortization period, minimum contributions may be required to fully amortize the base UAAL depending on future

experience. We expect these amortization methods to fully amortize benefit improvements within a reasonable period and reduce the base UAAL by a reasonable amount each year.

Total contributions for PERS 1 and TRS 1 under the contribution allocation procedure exceed the normal cost, plus interest on the PERS and TRS Plan 1 UAAL. As of this measurement, we expect the base UAAL to be fully amortized within the next five years and benefit improvements to be fully amortized within the next ten years. The actual period of amortization may vary from this estimate.

I (Matthew M. Smith) provided advice to the Legislature on the development of the asset valuation method, the modification of the original contribution allocation procedure for the open plans to add minimum contribution rates, and on the development of the contribution allocation procedure for PERS 1 and TRS 1.

The asset smoothing method adopted during the 2003 Legislative Session (Chapter 11, Laws of 2003, E1) was developed to address the volatility of actuarially determined contributions under the aggregate actuarial cost method when used in combination with the existing asset allocation policy of the WSIB. The combination of the current asset smoothing method with any other funding method or asset allocation policy may not be appropriate. The Legislature may need to revisit the application of the current asset smoothing method with the Plan 1 funding method as the duration of liabilities in those plans becomes shorter.

The contribution allocation procedure for the open plans was modified from the original procedure to add minimum normal cost contribution rates. These minimum contribution rates ensure the plans receive adequate long-term funding and reduce the risk of the plans collecting inadequate contributions during short-term periods of significantly, better-than-expected experience.

The contribution allocation procedure for PERS 1 and TRS 1 includes a rolling ten-year amortization of the base UAAL to support the Legislature's goals under RCW 41.45.010(3) to "... balance needs for increased benefit security, decreased contribution rate volatility, and affordability of pension contribution rates." In recognition of the expected impact of an ongoing, rolling amortization period on plan funding, the procedure includes minimum base UAAL contribution rates to support the Legislature's desire to fully amortize the PERS 1 and TRS 1 UAAL. The procedure also relies on a ten-year fixed amortization of benefit improvements enacted after 2009 to support the goals under RCW 41.45.010(3) and recognize the shorter duration of expected future benefit payments in PERS 1 and TRS 1. The Legislature may need to revisit the length of this amortization period for future enacted benefit improvements as the duration of expected future benefit payments becomes shorter.

When calculating actuarially determined contributions in this valuation, we considered the period between the measurement date and collection of contributions based on this actuarial valuation. We adjusted PERS 1 and TRS 1 base UAAL rates to account for expected contributions during this period. We determined that no adjustments were necessary for the open plans.

The Department of Retirement Systems (DRS) provided us with audited member and beneficiary data as of June 30, 2023. We checked the data for reasonableness as appropriate based on the purpose of the valuation. The Washington State Investment Board and DRS provided audited financial and asset information as of June 30, 2023. We relied on all the information provided as complete and accurate.

In our opinion, this information is adequate and substantially complete for purposes of this valuation.

The undersigned, with actuarial credentials, meet the Qualification Standards of the American Academy of Actuaries to render the actuarial opinions contained herein. While this report is intended to be complete, we are available to offer extra advice and explanations as needed.

Sincerely,

Kyle Stineman, ASA, MAAA
Actuary

Matthew M. Smith, FCA, EA, MAAA
State Actuary

CONTRIBUTION RATES

Calculated Member and Employer Rate Summary					
		Plan 1		Plans 2/3	
		2023	2021	2023	2021
PERS	**Member***	**6.00%**	**6.00%**	**6.57%**	**7.20%**
	Employer (Normal Cost)	6.57%	7.20%	6.57%	7.20%
	Employer (Plan 1 UAAL)**	2.05%	3.85%	2.05%	3.85%
	Total Employer	**8.62%**	**11.05%**	**8.62%**	**11.05%**
TRS	**Member***	**6.00%**	**6.00%**	**8.65%**	**8.64%**
	Employer (Normal Cost)	8.72%	9.70%	8.72%	9.70%
	Employer (Plan 1 UAAL)**	1.10%	6.46%	1.10%	6.46%
	Total Employer	**9.82%**	**16.16%**	**9.82%**	**16.16%**
SERS	**Member***	**N/A**	**N/A**	**7.92%**	**8.47%**
	Employer (Normal Cost)	N/A	N/A	7.92%	8.47%
	Employer (PERS Plan 1 UAAL)**	N/A	N/A	2.05%	3.85%
	Total Employer	**N/A**	**N/A**	**9.97%**	**12.32%**
PSERS	**Member**	**N/A**	**N/A**	**7.71%**	**7.46%**
	Employer (Normal Cost)	N/A	N/A	7.71%	7.46%
	Employer (PERS Plan 1 UAAL)**	N/A	N/A	2.05%	3.85%
	Total Employer	**N/A**	**N/A**	**9.76%**	**11.31%**
LEOFF	**Member**	**0.00%**	**0.00%**	**9.43%**	**9.94%**
	Employer	**0.00%**	**0.00%**	**5.66%**	**5.96%**
	State (Normal Cost)	0.00%	0.00%	3.77%	3.98%
	State (Plan 1 UAAL)	0.00%	0.00%	0.00%	0.00%
	Total State	**0.00%**	**0.00%**	**3.77%**	**3.98%**
WSPRS	**Member**	**8.75%**	**8.61%**	**8.75%**	**8.61%**
	Employer (State)	**21.72%**	**24.10%**	**21.72%**	**24.10%**

Note: Employer rates exclude administrative expense rate.

**Plan 3 members do not contribute to the defined benefit plan.*

***2023 figures reflect ESSB 5294 (Chapter 396, Laws of 2023) which prescribes base PERS 1 and TRS 1 UAAL contribution rates through FY 2027. Figures reflect the prescribed base contribution rates for FY 2026. The prescribed base contribution rate is 1.00% lower in FY 2027 for PERS, SERS, and PSERS employers.*

TRS Plan 2 Maximum Member Contribution Rates					
Valuation Year	**Prior Max**	**Supplemental**	**New Max**	**Description**	**Source**
2022 - 2023	8.64%	0.01%	8.65%	Prospectively increased retirement benefits for certain annuitants.	C 410 L 23
2010 - 2021	8.63%	0.01%	8.64%	AFC protection against reduced salaries.	C 5 L 11
2007 - 2009	8.55%	0.08%	8.63%	Out-of-state service credit purchases.	C 101 L 08
2006	7.76%	0.79%	8.55%	Improved Subsidized ERFs for certain Plan 2/3 members.	C 491 L 07
2005	7.75%	0.01%	7.76%	Lowered vesting requirements for certain Plan 3 members.	C 33 L 06
1999 - 2004	6.59%	1.16%	7.75%	Subsidized ERFs for Plan 2/3 members.	C 247 L 00
1997 - 1998	N/A	N/A	6.59%		

Note: Maximum member contribution rates change each year by 50% of benefit improvements, except as stated in RCW 41.45.070.

WSPRS Plan 1/2 Maximum Member Contribution Rates					
Valuation Year	**Prior Max**	**Supplemental**	**New Max**	**Description**	**Source**
2023	8.74%	0.01%	8.75%	Modified the definition of "Veteran."	C 146 L 24
2022	8.61%	0.13%	8.74%	Modified the definition of "Veteran."	C 18 L 23
2019 - 2021	8.45%	0.16%	8.61%	Modified the definition of "Veteran" and leave cash-out as pensionable salary.	C 97 L 20
2017 - 2018	8.44%	0.01%	8.45%	Modified the definition of "Veteran."	C 61 L 18
2016*	7.68% 7.34%	0.76% 0.34%	8.44% 7.68%	Expanded the definition of pensionable overtime.	C 181 L 17
2014 - 2015	7.19%	0.15%	7.34%	L&I duty-related death benefits paid from pension trust fund on remarriage.	C 78 L 15
2009 - 2013	7.18%	0.01%	7.19%	Increased duty-related death benefits.	C 261 L 10
2008	6.95%	0.23%	7.18%	Survivor benefits for registered domestic partners.	C 522 L 09
2006 - 2007**	N/A	N/A	6.95%		

Note: Maximum member contribution rates change each year by 50% of benefit improvements, except as stated in RCW 41.45.070.

**This law stipulated a phased increase to the member maximum rate by applying 0.34% in FY 2018 and 0.76% in FY 2019.*

***The original maximum contribution rate of 7% was decreased by 0.05% for C 87 L 07 (raised maximum retirement age, 0.14% decrease) and C 488 L 07 (provided medical premium reimbursements for certain survivors, 0.09% increase).*

The following table compares the member and total employer contribution rates that were adopted by the PFC and the LEOFF Plan 2 Retirement Board against the rates that were calculated by OSA. Note the 2023-25 adopted rates we display include the supplemental rates charged following the 2023 and 2024 Legislative Sessions and modifications to the UAAL contribution rates for PERS 1 and TRS 1 under ESSB 5294 (Chapter 396, Laws of 2023).

Contribution Rates

		2023-25 Adopted[1]	2025-27 Calculated[2]	2025-27 Adopted[3]
PERS 1	Member	6.00%	6.00%	6.00%
	Total Employer	8.91%	8.62%	8.20%
PERS 2/3	Member[4]	6.36%	6.57%	6.15%
	Total Employer	8.91%	8.62%	8.20%
TRS 1	Member	6.00%	6.00%	6.00%
	Total Employer	9.66%	9.82%	9.26%
TRS 2/3	Member[4]	8.06%	8.65%	8.16%
	Total Employer	9.66%	9.82%	9.26%
SERS 2/3	Member[4]	7.76%	7.92%	7.59%
	Total Employer	10.31%	9.97%	9.64%
PSERS 2	Member	6.76%	7.71%	7.07%
	Total Employer	9.31%	9.76%	9.12%
LEOFF 1	Member	0.00%	0.00%	0.00%
	Employer	0.00%	0.00%	0.00%
	State	0.00%	0.00%	0.00%
LEOFF 2[5]	Member	8.53%	9.43%	8.53%
	Employer	5.12%	5.66%	5.12%
	State	3.41%	3.77%	3.41%
WSPRS 1/2	Member	8.75%	8.75%	8.75%
	Employer (State)	17.80%	21.72%	17.71%

Note: Employer rates exclude administrative expense rate.

[1]Adopted rates as of FY 2025 and including 2024 Session supplemental rates. Adopted rates for FY 2024 were 0.50% higher for PERS, SERS, and PSERS employers.

[2]2025-27 Calculated total employer contribtuion rates reflect ESSB 5294 (Chapter 396, Laws of 2023) which prescribes base PERS 1 and TRS 1 UAAL contribution rates through FY 2027. Figures reflect the prescribed base contribution rates for FY 2026. The prescribed base contribution rate is 1.00% lower in FY 2027 for PERS, SERS, and PSERS employers.

[3]Figures reflect the adopted contribution rates for FY 2026. The adopted total employer contribution rate is 1.00% lower in FY 2027 for PERS, SERS, and PSERS employers consistent with ESSB 5294 (Chapter 396, Laws of 2023).

[4]Plan 3 members do not contribute to the defined benefit plan.

[5]The LEOFF 2 Board adopts contribution rates for LEOFF 2.

The tables which follow show the development of the normal cost rates and the Plan 1 UAAL rates. Plan 2 members and members in WSPRS 1 pay the applicable normal cost only. Employers in each system pay the normal cost plus any applicable UAAL.

Consistent with current funding policy, the normal cost rates include minimum contribution rates to provide stable and adequate contribution rates over time. These minimum rates are a percent of the normal cost calculated under the EAN funding method. The percent is 70% for WSPRS Plans 1 and 2, 80, 90, or 100% for LEOFF Plan 2 (dependent on the funded ratio), and 80% for all other plans.

The calculated normal cost contribution rates are based on the 7% Rate of Investment Return assumption adopted by the PFC without adjustment for any contribution rate phase-in. The 2025-27 adopted normal cost contribution rates, however, do reflect a continuation of the contribution rate phase-in of the reduced Rate of Investment Return assumption.

Development of Normal Cost Rates			
(Dollars in Millions)	**PERS 2/3**	**TRS 2/3**	**SERS 2/3**
1. Calculated Member Normal Cost Rate			
a. Present Value of Fully Projected Benefits	$73,890	$35,064	$12,197
b. Valuation Assets	58,592	23,569	8,858
c. Unfunded Fully Projected Benefits (a - b)	15,298	11,495	3,338
d. Past Liability Balance	0	0	0
e. Adjusted Unfunded (c - d)	**$15,298**	**$11,495**	**$3,338**
Present Value of Projected Salaries to Current Members (PVS)			
f. Plan 1 PVS	N/A	N/A	N/A
g. Plan 2 PVS	$101,789	$36,416	$14,993
h. Plan 3 PVS	29,288	59,397	12,160
i. Weighted PVS (2f + 2g + h)	**$232,867**	**$132,229**	**$42,146**
j. Member Normal Cost (e / i)	6.57%	8.69%	7.92%
k. Member Minimum Contribution Rate	4.86%	5.91%	5.23%
l. Prior Year Member Maximum Contribution Rate	N/A	8.64%	N/A
m. Member Contribution Rate with Max/Min	6.57%	8.64%	7.92%
n. Change In Plan Provisions (Laws of 2024)*	0.00%	0.01%	0.00%
o. Calculated Member Contribution Rate (m + n)**	**6.57%**	**8.65%**	**7.92%**
2. Calculated Employer Normal Cost Rate			
a. Present Value of Fully Projected Benefits	$73,890	$35,064	$12,197
b. Valuation Assets	58,592	23,569	8,858
c. Unfunded Benefits (a - b)	15,298	11,495	3,338
d. Present Value of Member Contributions	6,687	3,146	1,188
e. Past Liability Balance	N/A	N/A	N/A
f. Employer Responsibility (c - d - e)	**$8,611**	**$8,349**	**$2,151**
Present Value of Projected Salaries to Current Members (PVS)			
g. Plan 1 PVS	N/A	N/A	N/A
h. Plan 2 PVS	$101,789	$36,416	$14,993
i. Plan 3 PVS	29,288	59,397	12,160
j. Total PVS (g + h + i)	**$131,077**	**$95,813**	**$27,153**
k. Employer Normal Cost (f / j)	6.57%	8.71%	7.92%
l. Employer Minimum Contribution Rate	4.86%	5.91%	5.23%
m. Employer Contribution Rate with Minimum	6.57%	8.71%	7.92%
n. Change In Plan Provisions (Laws of 2024)*	0.00%	0.01%	0.00%
o. Calculated Employer Contribution Rate (m + n)	**6.57%**	**8.72%**	**7.92%**
3. Adopted Normal Cost Rates for 2025-27			
a. Member Contribution Rate	6.15%	8.16%	7.59%
b. Employer Contribution Rate	6.15%	8.16%	7.59%
c. State Contribution Rate	N/A	N/A	N/A
d. Total Contribution Rate (a + b + c)	**12.30%**	**16.32%**	**15.18%**

Note: Totals may not agree due to rounding.

**Includes 2023 Legislation effective after measurement date of June 30, 2023.*

***Plan 3 members do not contribute to the defined benefit plan.*

Development of Normal Cost Rates *(Continued)*			
(Dollars in Millions)	PSERS 2	LEOFF 2	WSPRS 1/2
1. Calculated Member Normal Cost Rate			
a. Present Value of Fully Projected Benefits	$2,589	$25,392	$2,045
b. Valuation Assets	1,376	19,342	1,675
c. Unfunded Fully Projected Benefits (a - b)	1,213	6,050	370
d. Past Liability Balance	0	0	1
e. Adjusted Unfunded (c - d)	**$1,213**	**$6,050**	**$369**
Present Value of Projected Salaries to Current Members (PVS)			
f. Plan 1 PVS	N/A	N/A	$111
g. Plan 2 PVS	$8,031	$32,207	1,110
h. Plan 3 PVS	N/A	N/A	N/A
i. Weighted PVS (2f + 2g + h)	**$16,062**	**$64,413**	**$2,442**
j. Member Normal Cost (e / i)	7.55%	9.39%	15.09%
k. Member Minimum Contribution Rate	6.09%	9.22%	7.72%
l. Prior Year Member Maximum Contribution Rate	N/A	N/A	8.61%
m. Member Contribution Rate with Max/Min	7.55%	9.39%	8.61%
n. Change In Plan Provisions (Laws of 2024)*	0.16%	0.04%	0.14%
o. Calculated Member Contribution Rate (m + n)	**7.71%**	**9.43%**	**8.75%**
2. Calculated Employer Normal Cost Rate			
a. Present Value of Fully Projected Benefits	$2,589	$25,392	$2,045
b. Valuation Assets	1,376	19,342	1,675
c. Unfunded Benefits (a - b)	1,213	6,050	370
d. Present Value of Member Contributions	606	3,025	105
e. Past Liability Balance	N/A	N/A	1
f. Employer Responsibility (c - d - e)	**$606**	**$3,025**	**$263**
Present Value of Projected Salaries to Current Members (PVS)			
g. Plan 1 PVS	N/A	N/A	$111
h. Plan 2 PVS	$8,031	$32,207	1,110
i. Plan 3 PVS	N/A	N/A	N/A
j. Total PVS (g + h + i)	**$8,031**	**$32,207**	**$1,221**
k. Employer Normal Cost (f / j)	7.55%	9.39%	21.58%
l. Employer Minimum Contribution Rate	6.09%	9.22%**	7.72%
m. Employer Contribution Rate with Minimum	7.55%	9.39%	21.58%
n. Change In Plan Provisions (Laws of 2024)*	0.16%	0.04%	0.14%
o. Calculated Employer Contribution Rate (m + n)	**7.71%**	**9.43%**	**21.72%**
3. Adopted Normal Cost Rates for 2025-27***			
a. Member Contribution Rate	7.07%	8.53%	8.75%
b. Employer Contribution Rate	7.07%	5.12%	17.71%
c. State Contribution Rate	N/A	3.41%	N/A
d. Total Contribution Rate (a + b + c)	**14.14%**	**17.06%**	**26.46%**

Note: Totals may not agree due to rounding.

**Includes 2023 Legislation effective after measurement date of June 30, 2023.*

***LEOFF 2 minimum rates vary based on the plan's funded status as of the measurement date.*

****LEOFF 2 rates adopted by LEOFF 2 Board; all others adopted by the PFC. LEOFF 2 rate: 50% Member, 30% Employer, 20% State.*

The table which follows shows the development of the Plan 1 UAAL rates. Currently no UAAL contributions are required for LEOFF 1. All employers of PERS, SERS, and PSERS members contribute toward the PERS 1 UAAL, while all employers of TRS members contribute toward the TRS 1 UAAL.

The PERS 1 and TRS 1 UAAL contribution rates are comprised of two components. Benefit improvements enacted after 2009 are amortized over a fixed ten-year period. Any remaining UAAL, the "base UAAL," is funded through a rolling ten-year amortization period with minimum contribution rates of 0.50% effective at the beginning of the 2027-29 Biennium. For the 2025-27 Biennium, this base UAAL rate is replaced by prescribed rates.

Amortization of the Plan 1 UAAL			
(Dollars in Millions)	**PERS 1**	**TRS 1**	**LEOFF 1**
a. Present Value of Fully Projected Benefits (PVFB)	$10,593	$7,691	$4,269
b. Valuation Assets	8,561	6,732	6,365
c Actuarial Present Value of Future Normal Costs	13	3	0
d. Balance of Plan 1 Benefit Improvements[1]	598	580	N/A
e. Contribution Receivable Adjustment[2]	855	168	N/A
f. Base UAAL (a - b - c - d - e)	**$566**	**$208**	**($2,095)**
g. Present Value of Projected Salaries[3]	$167,074	$77,032	N/A
h. Base UAAL Rate (f / g)	0.34%	0.27%	N/A
i. Plan 1 Benefit Improvement Rate	0.47%	0.94%	N/A
j. Change In Plan Provisions (Laws of 2024)	0.08%	0.16%	N/A
k. Actuarially Determined Total UAAL Rate (h + i + j)[4]	0.89%	1.37%	N/A
l. Prescribed Total UAAL Rate[5]	**2.05%**	**1.10%**	**N/A**
Adopted Total UAAL Rate for 2025-27[6]	**2.05%**	**1.10%**	**0.00%**

Note: Totals may not agree due to rounding.

[1]As stated in RCW 41.45.060, the cost of funding Plan 1 benefit improvements shall be amortized over a fixed 10-year period.

[2]Represents the present value of expected Base UAAL contributions made by employers between the measurement date of 6/30/2023 and the effective date of any contribution rate changes for the 2025-27 Biennium.

[3]Measured under the plan's amortization method.

[4]No LEOFF 1 UAAL contributions are required when the plan is fully funded under current methods and assumptions.

[5]ESSB 5294 (Chapter 396, Laws of 2023) prescribes base contribution rates for PERS 1 and TRS 1 through FY 2027. Figures represent the prescribed base contribution rates for FY 2026, plus the sum of applicable Benefit Improvement Rates. The prescribed base contribution rate for PERS 1 is 1.00% lower in FY 2027.

[6]The adopted contribution rate for PERS 1 is 1.00% lower in FY 2027 consistent with ESSB 5294 (Chapter 396, Laws of 2023).

The following tables provide more detailed information on the fixed ten-year benefit improvement and prescribed PERS 1 and TRS 1 total UAAL rates.

Benefit Improvement Amortization Rates *(Dollars in Millions)*				
Legislative Session	**Benefit Improvement Bill**	**Amortization Period Remains Through FY**	**Current UAAL Balance**	**Fixed Amortization Rate**
		PERS 1		
2018	SSB 6340	2028	$80	0.10%
2020	EHB 1390	2030	125	0.11%
2022	SB 5676	2032	206	0.14%
2023	SB 5350	2033	186	0.12%
		Total	**$598**	**0.47%**
		Laws of 2024*		
2024	SHB 1985	2034	$123	0.08%
		TRS 1		
2018	SSB 6340	2028	$74	0.21%
2020	EHB 1390	2030	129	0.23%
2022	SB 5676	2032	198	0.27%
2023	SB 5350	2033	180	0.23%
		Total	**$580**	**0.94%**
		Laws of 2024*		
2024	SHB 1985	2034	$119	0.16%

**Figures rely on fiscal note produced during 2024 Legislative Session for SHB 1985.*

PERS 1 and TRS 1 Prescribed Total UAAL Rates		
FY	**2026**	**2027**
PERS 1		
Prescribed Base UAAL Rate	1.50%	0.50%
Benefit Improvement Rate	0.55%	0.55%
Prescribed Total UAAL Rate	**2.05%**	**1.05%**
TRS 1		
Prescribed Base UAAL Rate	0.00%	0.00%
Benefit Improvement Rate	1.10%	1.10%
Prescribed Total UAAL Rate	**1.10%**	**1.10%**

We provide additional contribution rate calculations on our Interactive Reports webpage. This interactive report calculates member and employer contribution rates that vary based on the asset valuation method and discount rate that the user selects. The state's funding policy, defined under Chapter 41.45 RCW, does not vary based on these selections.

ACTUARIAL LIABILITIES

Present Value of Fully Projected Benefits					
(Dollars in Millions)	PERS		TRS		SERS
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	Plans 2/3
Active Members					
Retirement	$178	$36,833	$49	$19,565	$5,825
Termination	0	4,672	0	4,213	1,026
Death	1	226	0	134	40
Disability	0	180	0	65	33
ROC[1] on Termination	0	684	0	102	113
ROC[1] on Death	2	194	1	40	22
Total Active	**$181**	**$42,788**	**$50**	**$24,118**	**$7,059**
Inactive Members					
Terminated Vested	$30	$4,296	$8	$1,679	$1,105
Terminated Non-Vested[2]	5	470	2	91	83
Service Retired[3]	9,476	25,017	7,129	8,286	3,646
Disability Retired	80	155	61	11	18
Survivors	821	855	441	175	103
TAP Annuities	0	309	0	705	183
Total Inactive	**$10,412**	**$31,102**	**$7,640**	**$10,947**	**$5,138**
All Members					
Laws of 2024[4]	$123	($125)	$119	$7	$1
2023 Total	**$10,716**	**$73,765**	**$7,810**	**$35,071**	**$12,198**
2022 Total	**$11,065**	**$67,129**	**$8,045**	**$31,902**	**$11,016**

Note: Totals may not agree due to rounding.

[1]Return of Contributions.

[2]Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.

[3]Includes liability from individuals who are entitled to a portion of the primary member's benefit (legal order payees).

*[4]Includes some 2023 Legislation effective after measurement date of June 30, 2023. Notable 2024 Legislation includes an ad hoc COLA for annuitants in PERS and TRS Plans 1 and an expansion of PSERS eligibility, including a transfer window for eligible members of PERS. Please see the **Appendix** for a full list of legislative changes included in the figures above.*

Present Value of Fully Projected Benefits *(Continued)*					
(Dollars in Millions)	PSERS	LEOFF		WSPRS	Total
	Plan 2	Plan 1	Plan 2	Plans 1/2	
Active Members					
Retirement	$1,872	$11	$13,851	$716	$78,900
Termination	263	0	264	6	10,444
Death	8	0	165	4	578
Disability	32	0	745	1	1,056
ROC[1] on Termination	56	0	140	3	1,098
ROC[1] on Death	9	0	73	1	342
Total Active	**$2,241**	**$11**	**$15,237**	**$731**	**$92,417**
Inactive Members					
Terminated Vested	$134	$0	$499	$37	$7,788
Terminated Non-Vested[2]	42	0	29	2	724
Service Retired[3]	165	1,880	8,850	1,172	65,620
Disability Retired	3	1,475	505	3	2,311
Survivors	3	902	272	100	3,672
TAP Annuities	0	0	0	0	1,197
Total Inactive	**$347**	**$4,258**	**$10,155**	**$1,314**	**$81,313**
All Members					
Laws of 2024[4]	$187	$0	$20	$4	$335
2023 Total	**$2,776**	**$4,269**	**$25,412**	**$2,049**	**$174,065**
2022 Total	**$2,302**	**$4,204**	**$23,018**	**$1,909**	**$160,589**

Note: Totals may not agree due to rounding.

[1]Return of Contributions.

[2]Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.

[3]Includes liability from individuals who are entitled to a portion of the primary member's benefit (legal order payees).

*[4]Includes 2023 Legislation effective after measurement date of June 30, 2023. Notable 2024 Legislation includes an ad hoc COLA for annuitants in PERS and TRS Plans 1 and an expansion of PSERS eligibility, including a transfer window for eligible members of PERS. Please see the **Appendix** for a full list of legislative changes included in the figures above.*

Entry Age Normal Accrued Liability[1]					
(Dollars in Millions)	PERS		TRS		SERS
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	Plans 2/3
Active Members					
Retirement	$165	$26,731	$47	$12,268	$3,951
Termination	(2)	2,435	(0)	2,334	467
Death	1	155	0	84	26
Disability	0	76	0	23	13
ROC[2] on Termination	(0)	(353)	(0)	(61)	(33)
ROC[2] on Death	2	112	1	15	10
Total Active	**$166**	**$29,156**	**$47**	**$14,663**	**$4,435**
Inactive Members					
Terminated Vested	$30	$4,296	$8	$1,679	$1,105
Terminated Non-Vested[3]	5	470	2	91	83
Service Retired[4]	9,476	25,017	7,129	8,286	3,646
Disability Retired	80	155	61	11	18
Survivors	821	855	441	175	103
TAP Annuities	0	309	0	705	183
Total Inactive	**$10,412**	**$31,102**	**$7,640**	**$10,947**	**$5,138**
All Members					
Laws of 2024[5]	$123	($13)	$119	$7	$1
2023 Total	**$10,701**	**$60,245**	**$7,807**	**$25,616**	**$9,574**
2022 Total	**$11,047**	**$55,247**	**$8,041**	**$23,195**	**$8,712**

Note: Totals may not agree due to rounding.

[1]Calculated using the EAN cost method. This method is used in the funded ratio calculation and is not used to determine contribution requirements.

[2]Return of Contributions.

[3]Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.

[4]Includes liability from individuals who are entitled to a portion of the primary member's benefit (legal order payees).

*[5]Includes 2023 Legislation effective after measurement date of June 30, 2023. Notable 2024 Legislation includes an ad hoc COLA for annuitants in PERS and TRS Plans 1 and an expansion of PSERS eligibility, including a transfer window for eligible members of PERS. Please see the **Appendix** for a full list of legislative changes included in the figures above.*

Entry Age Normal Accrued Liability[1] *(Continued)*					
(Dollars in Millions)	PSERS	LEOFF		WSPRS	Total
	Plan 2	Plan 1	Plan 2	Plans 1/2	
Active Members					
Retirement	$976	$11	$8,407	$467	$53,025
Termination	102	0	46	1	5,383
Death	4	0	27	1	298
Disability	7	0	361	0	481
ROC[2] on Termination	(14)	0	(40)	(1)	(502)
ROC[2] on Death	4	0	37	1	182
Total Active	**$1,079**	**$11**	**$8,838**	**$470**	**$58,866**
Inactive Members					
Terminated Vested	$134	$0	$499	$37	$7,788
Terminated Non-Vested[3]	42	0	29	2	724
Service Retired[4]	165	1,880	8,850	1,172	65,620
Disability Retired	3	1,475	505	3	2,311
Survivors	3	902	272	100	3,672
Tap Annuities	0	0	0	0	1,197
Total Inactive	**$347**	**$4,258**	**$10,155**	**$1,314**	**$81,313**
All Members					
Laws of 2024[5]	$0	$0	$19	$4	$259
2023 Total	**$1,427**	**$4,269**	**$19,011**	**$1,787**	**$140,437**
2022 Total	**$1,173**	**$4,204**	**$17,336**	**$1,669**	**$130,623**

Note: Totals may not agree due to rounding.

[1]Calculated using the EAN cost method. This method is used in the funded ratio calculation and is not used to determine contribution requirements.

[2]Return of Contributions.

[3]Members who terminated without a vested lifetime benefit but are eligible for a refund of their employee contributions with interest that currently reside in the trust.

[4]Includes liability from individuals who are entitled to a portion of the primary member's benefit (legal order payees).

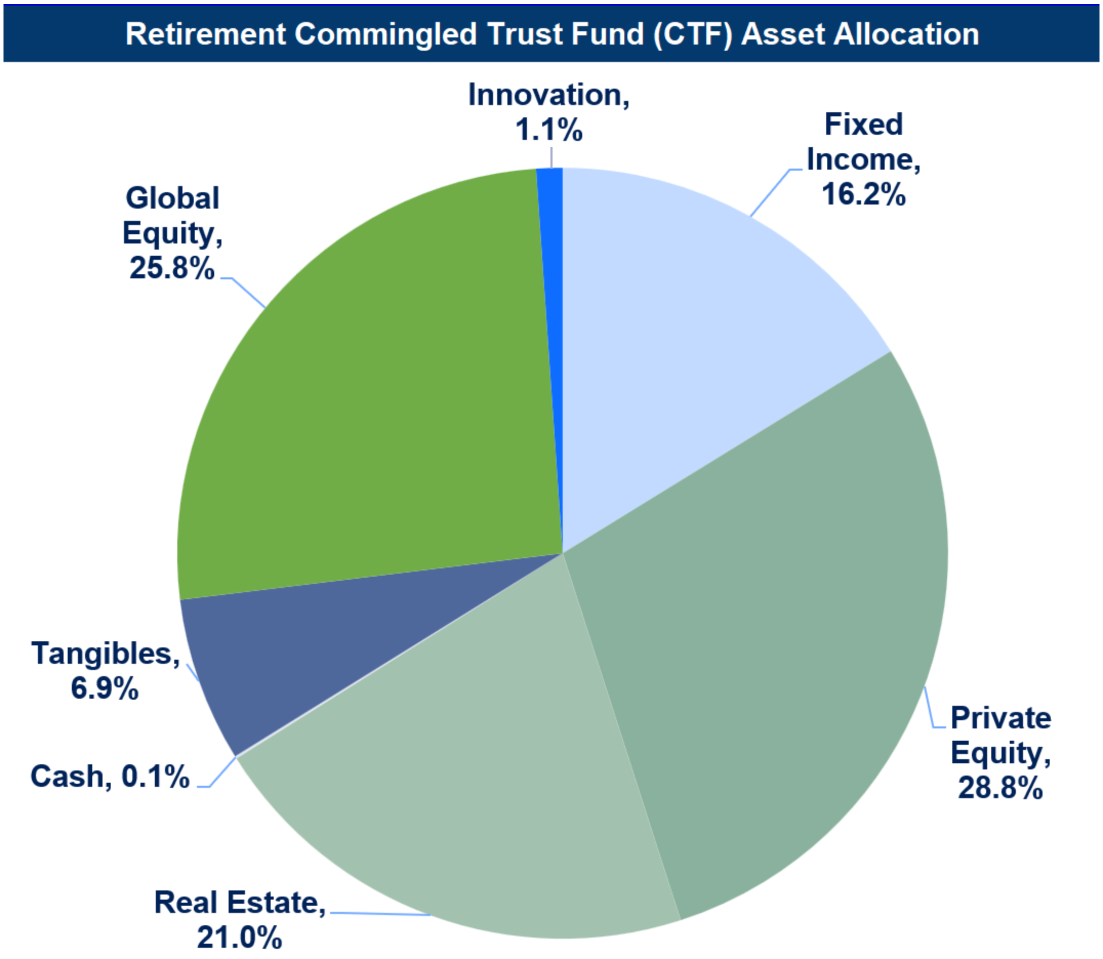
*[5]Includes 2023 Legislation effective after measurement date of June 30, 2023. Notable 2024 Legislation includes an ad hoc COLA for annuitants in PERS and TRS Plans 1 and an expansion of PSERS eligibility, including a transfer window for eligible members of PERS. Please see the **Appendix** for a full list of legislative changes included in the figures above.*

Some line items in the EAN accrued liability tables are negative. This is a result of how these benefits are accrued, over a member's working career, under the EAN actuarial cost method. The accrued liability for a given benefit provision is the difference between (1) today's value of all future benefits for that benefit definition and (2) how much of those future benefits are assumed to be accrued over the rest of the member's career. Item (1) is essentially split into annual "pieces" that are spread evenly across a career from first hire date to last assumed exit. Item (2) is how many more "pieces" they have left to accrue. For benefits like "Return Of Contributions (ROC) on Termination", while we assume members that are eligible for retirement will no longer elect an ROC benefit when they exit the system, they are still accruing the level piece of item (2) each year until they retire. So, in this instance, item (1) is zero but item (2) is positive. This means we get a negative number when subtracting item (2) from item (1).

Please note GASB mandates this methodology for the accrued liability calculation in financial reporting. We use the same methods in this report – a funding valuation – for easier comparison with financial reporting results.

We report the present and future value of benefit payments by year and by plan on our website. We also show how the present value of these benefit payments varies by interest rate assumptions. For more information or to view projected benefit payments, please visit our Interactive Reports webpage.

PLAN ASSETS



Source: Washington State Investment Board June 30, 2023, Quarterly Report.

***Cash**: Highly liquid, very safe investments that can be easily converted into cash, such as Treasury Bills and money-market funds.*

***Fixed Income**: Securities representing debt obligations and usually having fixed payments and maturities. Different types of fixed income securities include government and corporate bonds, mortgage-backed securities, asset-backed securities, convertible issues, and may also include money-market instruments.*

***Innovation**: Fund that provides the ability to invest in a broad range of assets that fall outside the traditional asset classes or management style of existing asset classes.*

***Global Equity**: Shares of U.S. and non-U.S. corporations that trade on public exchanges or "over the counter." The ownership of a corporation is represented by shares that are claimed on the corporation's earnings and assets.*

***Private Equity**: The infusion of equity capital into a private company (one that is not available on the public markets). Private equity investments include securities that are not listed on a public exchange and are not easily accessible to most individuals. These investments range from initial capital in start-up enterprises to leveraged buyouts of mature corporations.*

***Real Estate**: An externally managed selection of partnership investments with the majority of the partnerships invested in high-quality real estate leased to third parties.*

***Tangibles**: The tangible asset portfolio invests in sectors such as infrastructure, timber, agriculture, natural resources, commodities, or other sectors consistent with the goals of the asset class.*

Each asset class is unique in terms of expected return, standard deviation, and correlation to other asset classes. Please see page 28 of the 2023 EES for more information.

The following tables show the MVA changes from the previous valuation.

Change in Market Value of Assets

(Dollars in Millions)	PERS				TRS			
	Plan 1	TAP[1]	Plans 2/3 Pension[2]	Total	Plan 1	TAP[1]	Plans 2/3 Pension[2]	Total
2022 Unadjusted Market Value	**$9,093**	**$299**	**$58,535**	**$58,834**	**$6,837**	**$674**	**$22,469**	**$23,144**
Revenue								
Member Contributions	$3	$0	$694	$694	$1	$0	$212	$212
Employer/State Contributions	686	0	881	881	791[3]	0	678	678
Investment Return	609	21	4,075	4,096	460	49	1,586	1,635
Restorations[4]	1	0	36	36	0	0	5	5
Transfers In	0	24	1	25	0	51	2	53
Miscellaneous	0	0	0	0	0	0	0	0
Total Revenue	**$1,299**	**$45**	**$5,687**	**$5,732**	**$1,252**	**$99**	**$2,483**	**$2,582**
Disbursements								
Monthly Benefits	$1,164	$21	$1,971	$1,992	$863	$46	$609	$655
Refunds	2	0	70	70	1	0	8	8
Transfers Out	0	0	2	3	0	0	1	1
Expenses	1	0	1	1	0	0	0	0
Payables	0	0	0	0	0	0	0	0
Total Disbursements	**$1,167**	**$21**	**$2,044**	**$2,065**	**$864**	**$46**	**$619**	**$665**
2023 Market Value	**$9,226**	**$324**	**$62,177**	**$62,501**	**$7,225**	**$728**	**$24,333**	**$25,061**

Note: Totals may not agree due to rounding.

[1]Assets from purchased Total Allocation Portfolio (TAP) annuities by Plan 3 members are combined with the Plan 2/3 pension assets for purposes of calculating contribution rates.

[2]Excludes defined contribution portion of Plan 3 assets.

[3]Reflects $250 million appropriation on June 30, 2023 under ESSB 5294 (Chapter 396, Laws of 2023). This replaces the adjustment, as of June 30, 2022, found in the 2022 AVR.

[4]Includes additional annuity purchases and service credit purchases.

Change in Market Value of Assets *(Continued)*								
(Dollars in Millions)	SERS			PSERS	LEOFF		WSPRS	All Systems
	TAP[1]	Plan 2/3 Pension[2]	Total	Plan 2	Plan 1	Plan 2	Plans 1/2	
2022 Unadjusted Market Value	**$179**	**$8,568**	**$8,747**	**$1,272**	**$6,989**	**$19,162**	**$1,730**	**$135,808**
Revenue								
Member Contributions	$0	$127	$127	$51	$0	$226	$10	$1,323
Employer/State Contributions	0	244	244	51	0	226	21	3,578
Investment Return	13	602	615	93	457	1,327	118	9,411
Restoration[4]	0	2	2	0	0	18	1	62
Transfers In	14	0	15	0	0	476[3]	0	569
Miscellaneous	0	0	0	0	0	0	0	0
Total Revenue	**$27**	**$975**	**$1,002**	**$195**	**$457**	**$2,273**	**$151**	**$14,944**
Disbursements								
Monthly Benefits[5]	$13	$299	$312	$10	$572	$802	$84	$6,455
Refunds	0	10	10	8	1	13	1	113
Transfers Out	0	1	1	0	0	0	0	5
Expenses	0	0	0	0	0	2	0	5
Payables	0	0	0	0	0	0	0	0
Total Disbursements	**$13**	**$310**	**$323**	**$18**	**$573**	**$818**	**$85**	**$6,578**
2023 Market Value	**$193**	**$9,234**	**$9,427**	**$1,449**	**$6,874**	**$20,617**	**$1,795**	**$144,174**

Note: Totals may not agree due to rounding.

[1]Assets from purchased TAP annuities by Plan 3 members are combined with the Plan 2/3 pension assets for purposes of calculating contribution rates.

[2]Excludes defined contribution portion of Plan 3 assets.

[3]Reflects the transfer of the Benefit Improvement Account fund into the LEOFF 2 trust Under SBH 1701 (Chapter 125, Laws of 2022) during FY 2023. This replaces the adjustment, as of June 30, 2022, found in the 2022 AVR.

[4]Includes additional annuity purchases and service credit purchases.

[5]LEOFF Plan 1 monthly benefits includes $188 million provided under SSB 5791 (Chapter 168, Laws of 2022). LEOFF Plan 2 monthly benefits includes $215 million provided under SHB 1701 (Chapter 125, Laws of 2022).

Calculation of Actuarial Value of Assets							
(Dollars in Millions)			PERS 1	PERS 2/3	TRS 1	TRS 2/3	SERS 2/3
Investment Gains and (Losses) for FY							
a. Market Value (MV) at 6/30/2023			$9,226	$62,501	$7,225	$25,061	$9,427
b. Expected 7.0% Return*			$620	$4,104	$468	$1,630	$615
c. Actual Return			$609	$4,096	$460	$1,635	$615
Investment Gain/(Loss) (c - b)			($11)	($8)	($8)	$5	$0
Actual Rate of Return			6.88%	6.99%	6.89%	7.02%	7.00%
Smoothing Period			1	1	1	1	1
Deferred Gains and (Losses)							
Plan Year Ending	Smoothing Period	Years Remaining					
6/30/2023	1	0	$0	$0	$0	$0	$0
6/30/2022	7	5	(448)	(2854)	(336)	(1110)	(421)
6/30/2021	8	5	1,112	6,763	829	2,602	990
d. Total Deferral			**$664**	**$3,909**	**$493**	**$1,492**	**$569**
Market Value less Deferral (a - d)			$8,561	$58,592	$6,732	$23,569	$8,858
70% of Market Value of Assets			$6,458	$43,751	$5,058	$17,542	$6,599
130% of Market Value of Assets			$11,993	$81,251	$9,393	$32,579	$12,255
Actuarial Value of Assets**			**$8,561**	**$58,592**	**$6,732**	**$23,569**	**$8,858**
Ratio (AV / MV)			93%	94%	93%	94%	94%

Note: Totals may not agree due to rounding. The gain/(loss) for plan years not shown has been fully recognized.

**Dollar weighted rate of return assuming cashflows occur mid-year excluding the $250 million appropriation to the TRS 1 trust on June 30, 2023 under ESSB 5294 (Chapter 396, Laws of 2023).*

***Actuarial Value of Assets can never be less than 70% or greater than 130% of the Market Value of Assets.*

Calculation of Actuarial Value of Assets *(Continued)*							
(Dollars in Millions)			PSERS 2	LEOFF 1	LEOFF 2	WSPRS 1/2	Total
Investment Gains and (Losses) for FY							
a. Market Value (MV) at 6/30/2023			$1,449	$6,874	$20,617	$1,795	$144,174
b. Expected 7.0% Return*			$92	$470	$1,346	$119	$9,462
c. Actual Return			$93	$457	$1,327	$118	$9,411
Investment Gain/(Loss) (c - b)			$1	($12)	($19)	($1)	($51)
Actual Rate of Return			7.10%	6.82%	6.90%	6.94%	6.96%
Smoothing Period			1	1	1	1	1
Deferred Gains and (Losses)							
Plan Year Ending	**Smoothing Period**	**Years Remaining**					
6/30/2023	1	0	$0	$0	$0	$0	$0
6/30/2022	7	5	(60)	(345)	(927)	(85)	(6,586)
6/30/2021	8	5	133	855	2,202	204	15,690
Total Deferral			**$73**	**$509**	**$1,276**	**$120**	**$9,104**
Market Value less Deferral (a - b)			$1,376	$6,365	$19,342	$1,675	$135,070
70% of Market Value of Assets			1,014	4,812	14,432	1,256	100,922
130% of Market Value of Assets			1,883	8,936	26,802	2,333	187,426
Actuarial Value of Assets**			**$1,376**	**$6,365**	**$19,342**	**$1,675**	**$135,070**
Ratio (AV / MV)			95%	93%	94%	93%	94%

Note: Totals may not agree due to rounding. The gain/(loss) for plan years not shown has been fully recognized.

**Dollar weighted rate of return assuming cashflows occur mid-year.*

***Actuarial Value of Assets can never be less than 70% or greater than 130% of the Market Value of Assets.*

Additional information on the Retirement Commingled Trust Fund, including the asset allocation policy, can be found in the most recent EES.

FUNDED STATUS

Funded status is one of several measures that helps explain the health of a pension plan. The funded status represents the portion of the actuarial accrued liabilities covered by today's actuarial assets and provides information on the funding progress of the plan.

In our AVR, we calculate a plan's funded status by comparing the plan's current assets, determined under an asset valuation method, to the actuarial accrued liability of its members, calculated under an EAN actuarial cost method. Actuarial cost methods vary in the manner they allocate benefits to past and future time periods. We rely on an EAN actuarial cost method to better track the funding progress of accrued (or earned) benefits allocated to past service. Otherwise, the assumptions and methods used to measure funded status is consistent with the state's current funding policy and financing plan for future retirement benefits.

Funded status measures alone are not sufficient to determine whether a plan has enough assets to terminate or settle the plan obligations. Plans may have accumulated sufficient assets, at the measurement date, to satisfy the ongoing goal of having adequate assets to pay all currently earned benefits for existing members when due on an expected basis. However, ongoing contributions may still be required. The following table provides general guidance on how to interpret a plan's funded status at a point in time.

Interpretation of Plan Funded Status			
	Less than 100%	**Equals 100%**	**Greater than 100%**
Assets to Fund Earned Benefits as of the Measurement Date	Behind schedule on funding goals.	On schedule for funding goals.	Ahead of schedule on funding goals.
Contribution Rates	Typically requires higher contribution rates in the short term to raise plan's funded status to 100% over time.	Requires ongoing contribution rates for plans with members accruing future service.	Typically requires ongoing contribution rates for plans with members accruing future service. Short-term contribution rates may be lower to reduce the plan's funded status to 100% over time.

Plans with members accruing future service will typically require ongoing contributions. However, the level of actuarially determined contribution rates relative to current rates may be higher or lower depending on funded status and actual future experience.

As of the valuation date for the 2023 AVR, and under the data, assumptions, and methods used for this actuarial valuation, only LEOFF Plan 1 has sufficient assets to cease ongoing contributions.

Funded Status on an Actuarial Value Basis*					
(Dollars in Millions)	PERS		TRS		SERS
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	Plan 2/3
Accrued Liability	$10,701	$60,245	$7,807	$25,616	$9,574
Valuation Assets	$8,561	$58,592	$6,732	$23,569	$8,858
Unfunded Liability	**$2,140**	**$1,653**	**$1,075**	**$2,047**	**$715**
Funded Ratio					
2023	**80%**	**97%**	**86%**	**92%**	**93%**
2022	75%	97%	80%	92%	92%
2021	71%	95%	73%	90%	91%
2020	69%	98%	71%	93%	93%
2019	65%	96%	66%	91%	91%
2018	60%	91%	63%	90%	89%
2017	57%	89%	60%	91%	88%
2016	56%	87%	61%	89%	87%
2015	58%	88%	64%	92%	89%
2014	61%	90%	69%	94%	91%

Note: Totals may not agree due to rounding.

**Liabilities valued using the EAN cost method at an interest rate of 7.0%. All assets have been valued under the actuarial asset method.*

Funded Status on an Actuarial Value Basis* *(Continued)*					
(Dollars in Millions)	PSERS	LEOFF		WSPRS	Total
	Plan 2	Plan 1	Plan 2	Plans 1/2	
Accrued Liability	$1,427	$4,269	$19,011	$1,787	$140,437
Valuation Assets	$1,376	$6,365	$19,342	$1,675	$135,070
Unfunded Liability	**$51**	**($2,095)**	**($331)**	**$112**	**$5,368**
Funded Ratio					
2023	**96%**	**149%**	**102%**	**94%**	**96%**
2022	101%	152%	104%	94%	96%
2021	98%	146%	104%	92%	93%
2020	101%	148%	113%	97%	95%
2019	101%	141%	111%	95%	92%
2018	96%	135%	108%	93%	89%
2017	95%	131%	109%	92%	86%
2016	94%	126%	105%	91%	84%
2015	95%	125%	105%	98%	86%
2014	96%	127%	107%	100%	87%

Note: Totals may not agree due to rounding.

**Liabilities valued using the EAN cost method at an interest rate of 7.0%. All assets have been valued under the actuarial asset method.*

The funded status depends on numerous assumptions. Two of the most significant assumptions are the mortality rates, which estimate how long we expect members to live, and the interest rate or expected return on plan assets. A key component of the mortality assumption is the rate at which mortality is expected to improve in the future. To show this, we doubled the current mortality improvement assumption (longer lifespans than our best estimate) and assumed no future improvements (shorter lifespans than our best estimate). We also considered the impact if the expected return on assets was 1% lower or higher.

The following tables demonstrate how the funded status changes across all retirement systems if we alter these assumptions.

Sensitivity of Funded Ratios to Assumed Mortality Rates			
(Dollars in Millions)	No Assumed Mortality Improvement	Best Estimate Assumed Mortality	Double Assumed Mortality Improvement
Accrued Liability	$130,681	$140,437	$150,271
Valuation Assets	$135,070	$135,070	$135,070
Unfunded Liability	($4,389)	$5,368	$15,201
Funded Ratio	103%	96%	90%

Sensitivity of Funded Ratios to Assumed Interest Rates			
(Dollars in Millions)	1% Lower 6.0%	Best Estimate Assumption 7.0%	1% Higher 8.0%
Accrued Liability	$159,887	$140,437	$124,423
Valuation Assets	$135,070	$135,070	$135,070
Unfunded Liability	$24,818	$5,368	($10,647)
Funded Ratio	84%	96%	109%

Please see our Commentary on Risk webpage for individual system results or our Interactive Reports webpage for more funded status measures that vary by interest rate assumptions and asset valuation methods.

The funded status measures we share in this report may vary from those presented in the *DRS Annual Comprehensive Financial Report*. These differences occur because the assumptions and methods applied to determine contribution requirements (under a funding valuation) may not apply for financial reporting under GASB accounting standards (an accounting valuation). Put another way, these measurements are used for distinct purposes, and the results may vary between the two reports.

LOW-DEFAULT-RISK OBLIGATION MEASURE

When determining plan costs for the purposes of calculating required contribution rates, current funding policy prescribes an annual assumed investment return of 7.0% to discount future expected benefits to the measurement date. These expected future investment returns are based on an investment policy that aims to maximize investment returns at a prudent level of risk. This investment strategy has reduced past required contributions and is expected, but not guaranteed, to reduce future required contributions. For example, over the past 20 years across all plans, investment returns have comprised approximately 70% of the pension fund's total income, with the remaining 30% coming from employer contributions and employee contributions.

Ultimately, actual funding requirements will be determined by actual experience including actual investment performance. Actual investment performance will inevitably vary from future expectations.

To provide a sense for how much future costs are potentially reduced under the state's current funding policy, we can compare those costs to the hypothetical costs under an investment policy with less risk. This comparison also provides a sense for how much costs under current funding policy could increase if future returns from a higher risk investment portfolio are not realized.

In the table below we make such a comparison. First, we display the funded status for each plan under current funding policy with an assumed investment return of 7%. Next, we display the funded status for each plan under a hypothetical funding policy where the plans would be supported by an investment portfolio comprised solely of low-default-risk fixed income securities. The latter measurement is referred to as a Low-Default-Risk Obligation Measure (or LDROM).

For the calculation of the LDROM, and consistent with ASOP 4, we selected a discount rate derived from US Treasury yields whose cash flows were reasonably consistent with the pattern of benefit payments expected to be paid by the covered plans in the future. As of June 30, 2023, that discount rate was 3.9% for the state's open plans and 4% for the closed plans.

All assumptions other than the assumed rate of investment return match between the two measurements presented below.

Funded Status on an Actuarial Value Basis					
(Dollars in Millions)	PERS		TRS		SERS
	Plan 1	Plans 2/3	Plan 1	Plans 2/3	Plan 2/3
Current Funding Policy					
Discount Rate	7.0%	7.0%	7.0%	7.0%	7.0%
Accrued Liability	$10,701	$60,245	$7,807	$25,616	$9,574
Plan Funded Status	**80%**	**97%**	**86%**	**92%**	**93%**
LDROM					
Discount Rate	4.0%	3.9%	4.0%	3.9%	4.0%
Accrued Liability	$13,497	$94,525	$9,805	$42,194	$14,836
Plan Funded Status	**63%**	**62%**	**69%**	**56%**	**60%**

Funded Status on an Actuarial Value Basis *(Continued)*					
(Dollars in Millions)	PSERS	LEOFF		WSPRS	All Systems
	Plan 2	Plan 1	Plan 2	Plans 1/2	
Current Funding Policy					
Discount Rate	7.0%	7.0%	7.0%	7.0%	N/A
Accrued Liability	$1,427	$4,269	$19,011	$1,787	$140,437
Plan Funded Status	**96%**	**149%**	**102%**	**94%**	**96%**
LDROM					
Discount Rate	3.9%	4.0%	3.9%	3.9%	N/A
Accrued Liability	$2,573	$5,495	$30,699	$2,820	$216,445
Plan Funded Status	**53%**	**116%**	**63%**	**59%**	**62%**

For all the plans in the table above, the funded status is lower under the LDROM than under current funding policy. This measure reflects lower anticipated investment returns than under current funding policy. Lower returns would lead to higher expected contribution requirements if the hypothetical investment policy under the LDROM were the basis for determining future contribution requirements. Those higher expected future contribution requirements would come with lower investment risk than under the state's current policy. An ongoing comparison between these two measures can be helpful when evaluating the reasonableness of the risk/reward tradeoff under the state's current funding policy.

A funded status measurement, among other measures, is often used to also evaluate the health of a pension plan or security of any underlying benefit promise. As noted above, under the state's current funding policy future investment returns are expected, but not guaranteed, to cover a significant portion of future costs and serve to reduce required contributions. This same point can be extended to plan funded status. By comparing the funded status under current law funding policy to the LDROM basis, we can provide a sense for how much future accrued benefit payments rely on returns from higher risk investments. Typically, the larger the difference between assumed returns, the larger the difference you'll see between the two funded status measures. Additionally, the impact of that difference compounds over longer periods of future benefit payments. The state's open plans have longer periods of future benefit payments than the closed Plans 1. It is important to note that there are additional factors including legal protections that may impact the security of benefits for current participants.

As noted above, the LDROM is based on a hypothetical investment portfolio. Therefore, it is not appropriate to use this measurement to determine contribution requirements or evaluate funding progress under current law funding policy. We expect this measurement to change each year as interest rates change. Given the potential volatility of future interest rates, this measure may change to a larger degree, year over year, than the corresponding measure based on the state's current funding policy. We also note that if the state's funding policy were changed in the future to match the hypothetical investment policy under the LDROM, future measurements would vary from the measurements provided in this report due, in part, to the use of different measurement dates, and potentially the use of different assumptions and methods.

See the **Appendix** for additional supporting information on how we selected the discount rates for the LDROM and the rationale for selection.

ACTUARIAL GAIN/LOSS

The following tables display actuarial gains and losses, expressed as funded ratio changes as directed under ASOP 4. Actuaries use gain/loss analysis to compare actual changes to assumed changes from various sources with respect to assets and liabilities. We also use this analysis to determine:

- The accuracy of our valuation model and annual processing.
- Why funded ratios changed.
- The reasonableness of the actuarial assumptions.

Actuarial gains will increase funded ratios; actuarial losses will decrease funded ratios.

Under a reasonable set of actuarial assumptions, actuarial gains and losses will offset over long-term experience periods. Generally, a reduction in funded ratio will require a period of higher contribution rates and an increase in funded ratio will require a period of lower contribution rates.

Change in Open Plans Funded Ratio by Source			
Change in Funded Ratio	**PERS 2/3**	**TRS 2/3**	**SERS 2/3**
(a) 2022 Funded Ratio	**97.5%**	**91.6%**	**92.1%**
(b) Remove Laws of 2023	0.0%	0.0%	0.0%
(c) Expected Change in Funded Ratio	0.3%	0.7%	1.0%
(d) 2023 Expected Funded Ratio (a+b+c)	**97.8%**	**92.4%**	**93.1%**
Liabilities			
Salaries	(1.8%)	(1.3%)	(1.8%)
Retirement/Termination/Disability	0.2%	0.4%	0.4%
Mortality	0.0%	0.0%	0.1%
New Hires/Return to Work	(0.4%)	(0.7%)	(0.6%)
Miscellaneous	(0.3%)	(0.1%)	(0.3%)
(e) Total Liability Gains/Losses	**(2.3%)**	**(1.7%)**	**(2.2%)**
Assets*			
Investment Returns	2.4%	2.2%	2.2%
Contributions/Disbursements	0.2%	(0.1%)	0.2%
(f) Total Asset Gains/Losses	**2.6%**	**2.1%**	**2.4%**
Other Changes			
Plan Change	0.2%	0.0%	0.1%
Assumption and Methodology Changes	(1.0%)	(0.8%)	(0.9%)
(g) Total Other Changes	**(0.9%)**	**(0.7%)**	**(0.8%)**
2023 Funded Ratio			
(h) 2023 Funded Ratio Before Laws of 2024 (d+e+f+g)	97.2%	92.0%	92.5%
(i) Laws of 2024**	0.0%	0.0%	0.0%
(j) 2023 Funded Ratio (h + i)	**97.3%**	**92.0%**	**92.5%**
Total Change in Funded Ratio (j - a)	**(0.2%)**	**0.4%**	**0.4%**

Note: Totals may not agree due to rounding.

**Asset Gain/Loss performed on AVA not MVA.*

***Includes 2023 Legislation effective after measurement date of June 30, 2023.*

Change in Open Plans Funded Ratio by Source *(Continued)*			
Change in Funded Ratio	**PSERS 2**	**LEOFF 2**	**WSPRS 1/2**
(a) 2022 Funded Ratio	**100.6%**	**103.7%**	**94.4%**
(b) Remove Laws of 2023	0.0%	0.1%	0.2%
(c) Expected Change in Funded Ratio	(0.2%)	(0.2%)	0.4%
(d) Expected Funded Ratio (a+b+c)	**100.5%**	**103.6%**	**95.0%**
Liabilities			
Salaries	(6.3%)	(1.9%)	(1.0%)
Retirement/Termination/Disability	1.6%	(0.4%)	0.2%
Mortality	0.0%	0.0%	0.2%
New Hires/Return to Work	(1.3%)	(0.1%)	(0.1%)
Miscellaneous	0.3%	(0.5%)	(0.8%)
(e) Total Liability Gains/Losses	**(5.8%)**	**(2.9%)**	**(1.5%)**
Assets*			
Investment Returns	1.9%	2.5%	2.5%
Contributions/Disbursements	(0.2%)	0.0%	(0.1%)
(f) Total Asset Gains/Losses	**1.8%**	**2.5%**	**2.4%**
Other Changes			
Plan Change	0.3%	0.1%	0.0%
Assumption and Methodology Changes	(0.3%)	(1.5%)	(2.0%)
(g) Total Other Changes	**0.0%**	**(1.4%)**	**(2.0%)**
2023 Funded Ratio			
(h) 2023 Funded Ratio Before Laws of 2024 (d+e+f+g)	96.4%	101.8%	93.9%
(i) Laws of 2024**	0.0%	(0.1%)	(0.2%)
(j) 2023 Funded Ratio (h + i)	**96.4%**	**101.7%**	**93.7%**
Total Change in Funded Ratio (j - a)	**(4.2%)**	**(2.0%)**	**(0.7%)**

Note: Totals may not agree due to rounding.

**Asset Gain/Loss performed on AVA not MVA.*

***Includes 2023 Legislation effective after measurement date of June 30, 2023.*

Change in Closed Plans Funded Ratio by Source *(Continued)*			
Change in Funded Ratio	**PERS 1**	**TRS 1**	**LEOFF 1**
(a) 2022 Funded Ratio	**75.1%**	**80.5%**	**151.7%**
(b) Remove Laws of 2023	1.1%	1.6%	0.0%
(c) Expected Change in Funded Ratio	0.3%	0.2%	7.6%
(d) Expected Funded Ratio (a+b+c)	**76.5%**	**82.3%**	**159.3%**
Liabilities			
Salaries	0.0%	0.0%	0.0%
Retirement/Termination/Disability	0.0%	0.0%	0.0%
Mortality	0.3%	0.2%	0.7%
New Hires/Return to Work	0.0%	0.0%	0.0%
Miscellaneous	(0.2%)	(0.2%)	(10.3%)*
(e) Total Liability Gains/Losses	**0.0%**	**0.1%**	**(9.7%)**
Assets**			
Investment Returns	1.8%	2.0%	3.4%
Contributions/Disbursements	3.5%	4.7%	(0.4%)
(f) Total Asset Gains/Losses	**5.4%**	**6.7%**	**3.1%**
Other Changes			
Plan Change	(0.9%)	(1.4%)	0.0%
Assumption and Methodology Changes	0.0%	(0.1%)	(3.6%)
(g) Total Other Changes	**(0.9%)**	**(1.5%)**	**(3.6%)**
2023 Funded Ratio			
(h) 2023 Funded Ratio Before Laws of 2024 (d+e+f+g)	80.9%	87.6%	149.1%
(i) Laws of 2024**	(0.9%)	(1.3%)	0.0%
(j) 2023 Funded Ratio (h + i)	**80.0%**	**86.2%**	**149.1%**
Total Change in Funded Ratio (j - a)	**4.9%**	**5.7%**	**(2.6%)**

Note: Totals may not agree due to rounding.

**Retirees of LEOFF 1 receive fully indexed COLAs. This figure reflects an April 1, 2023, COLA of 8.81% compared to an assummed 2.75%.*

***Asset Gain/Loss performed on AVA not MVA.*

****Includes 2023 Legislation effective after measurement date of June 30, 2023.*